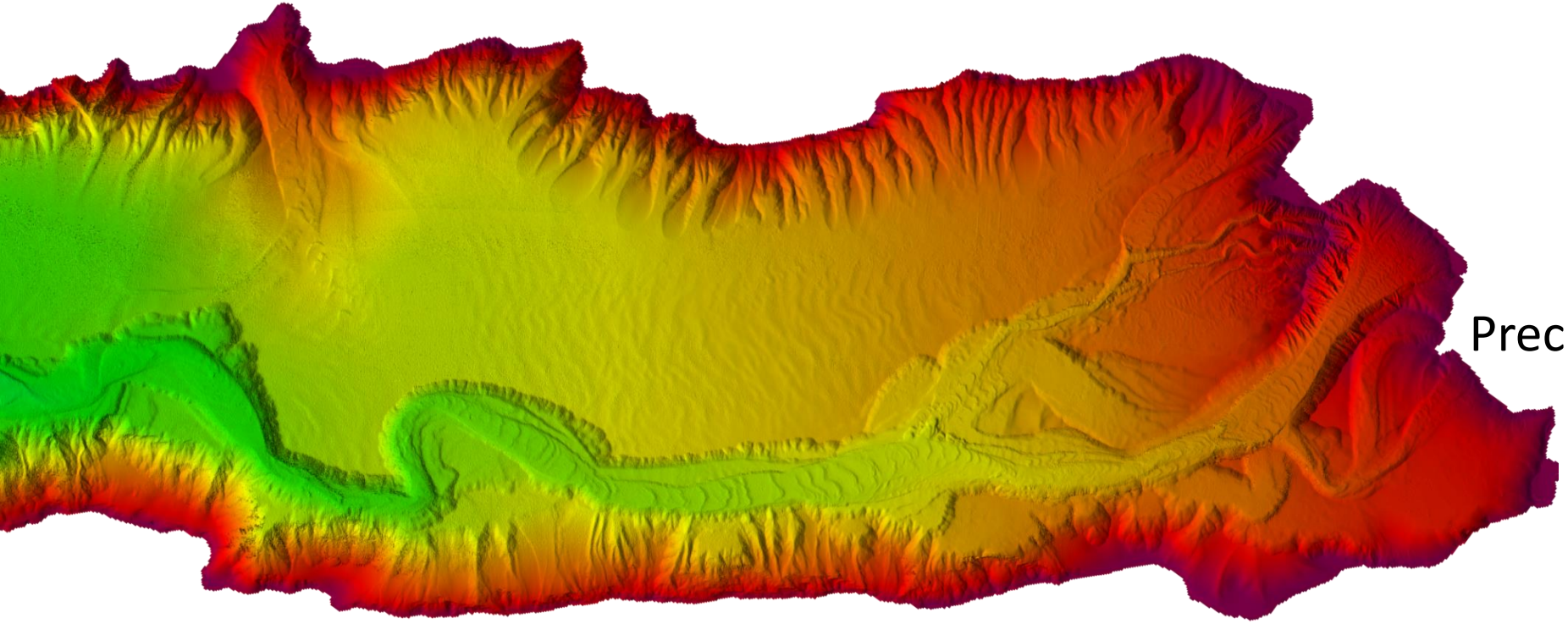
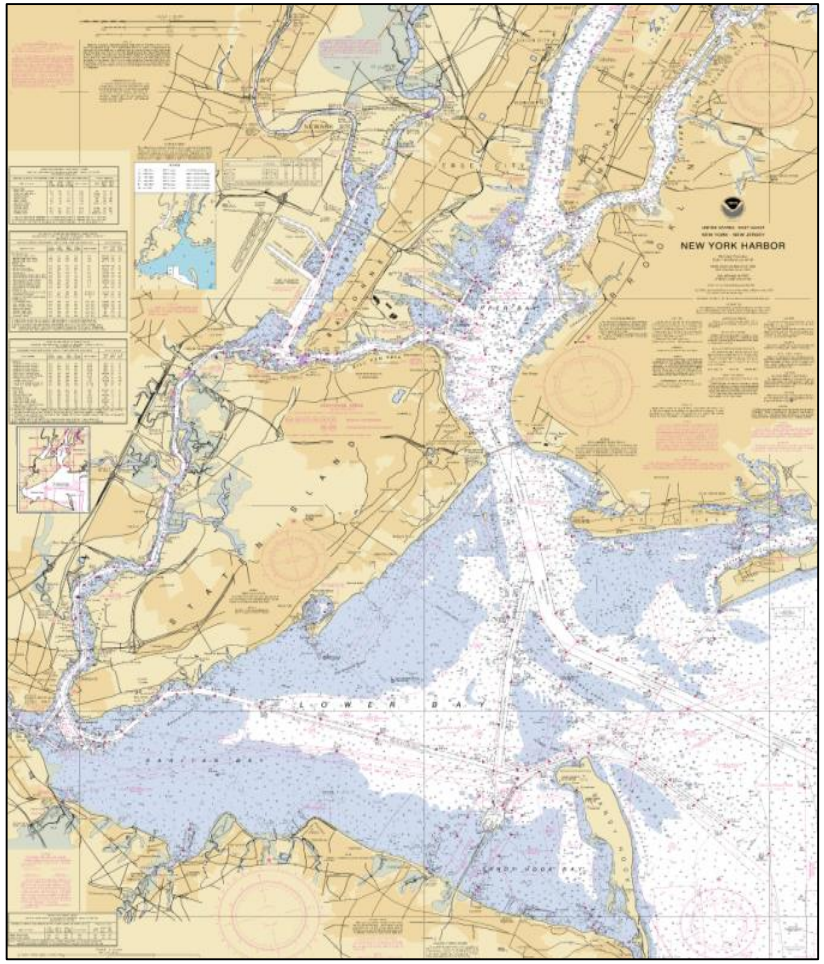
Non-Real-Time Precision Navigation Products

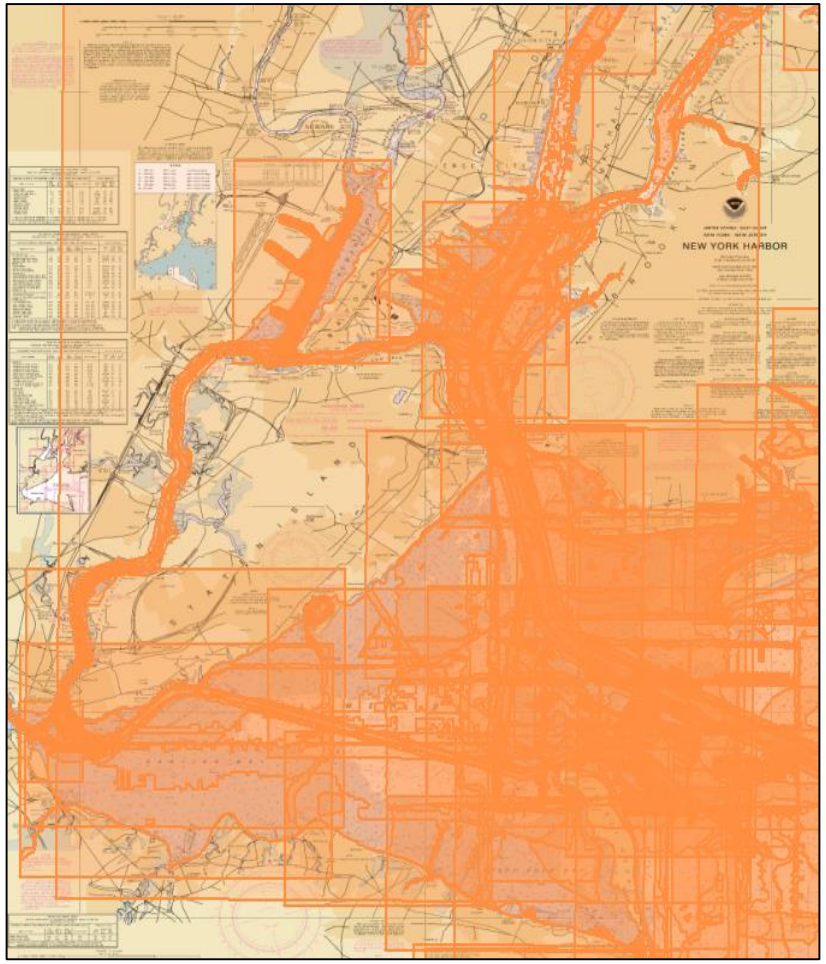
- S-102 Gridded Bathymetry: CAPT Richard T. Brennan, NOAA
- S-57/S-101 High-Definition Charts: Craig Winn

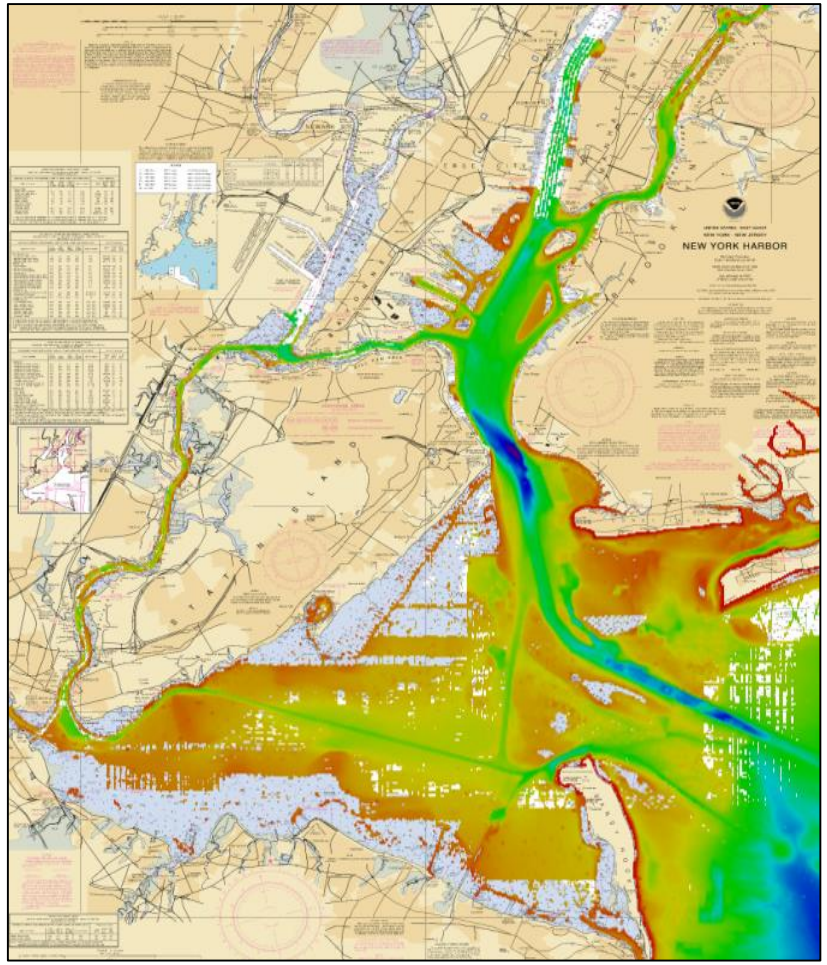


Precision Navigation Workshop
August 14, 2019

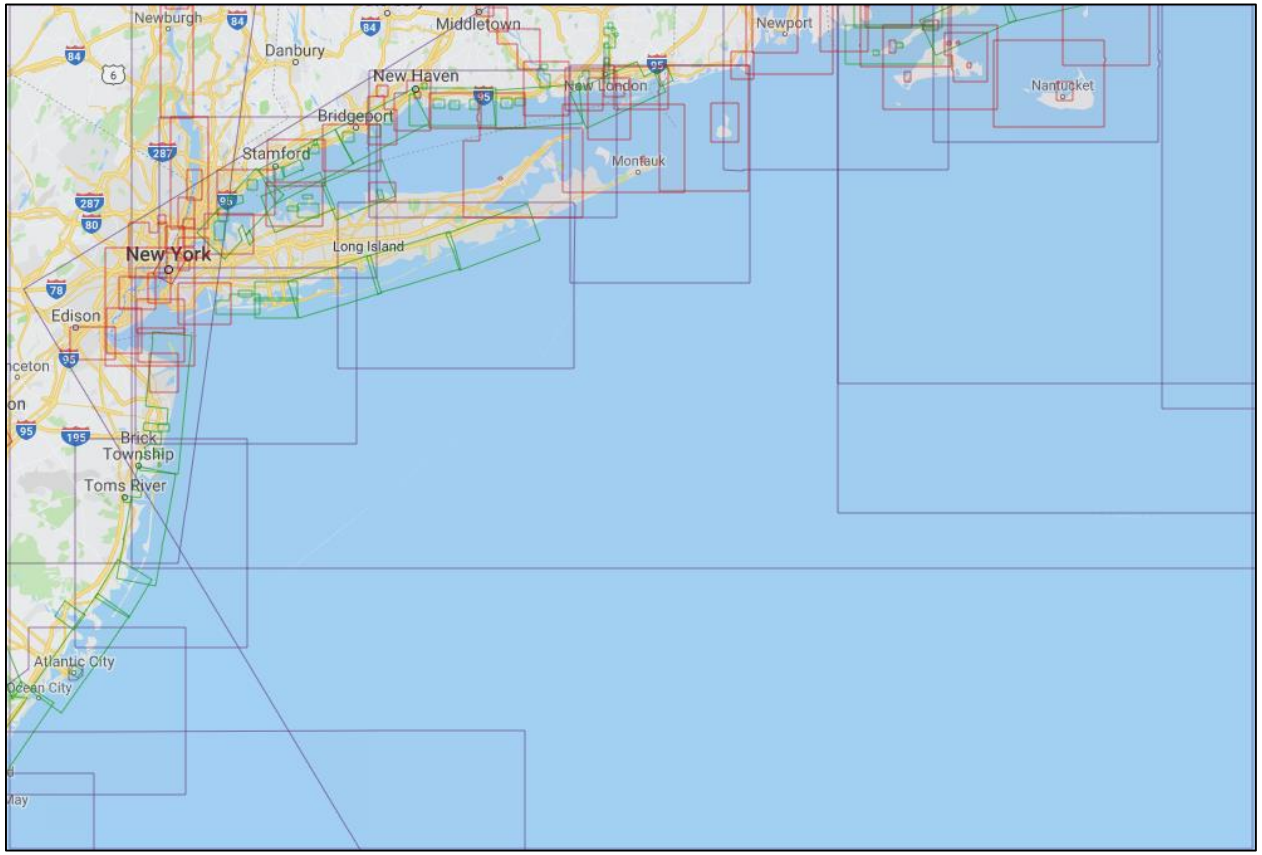
“The Nation’s Nautical Chartmaker”

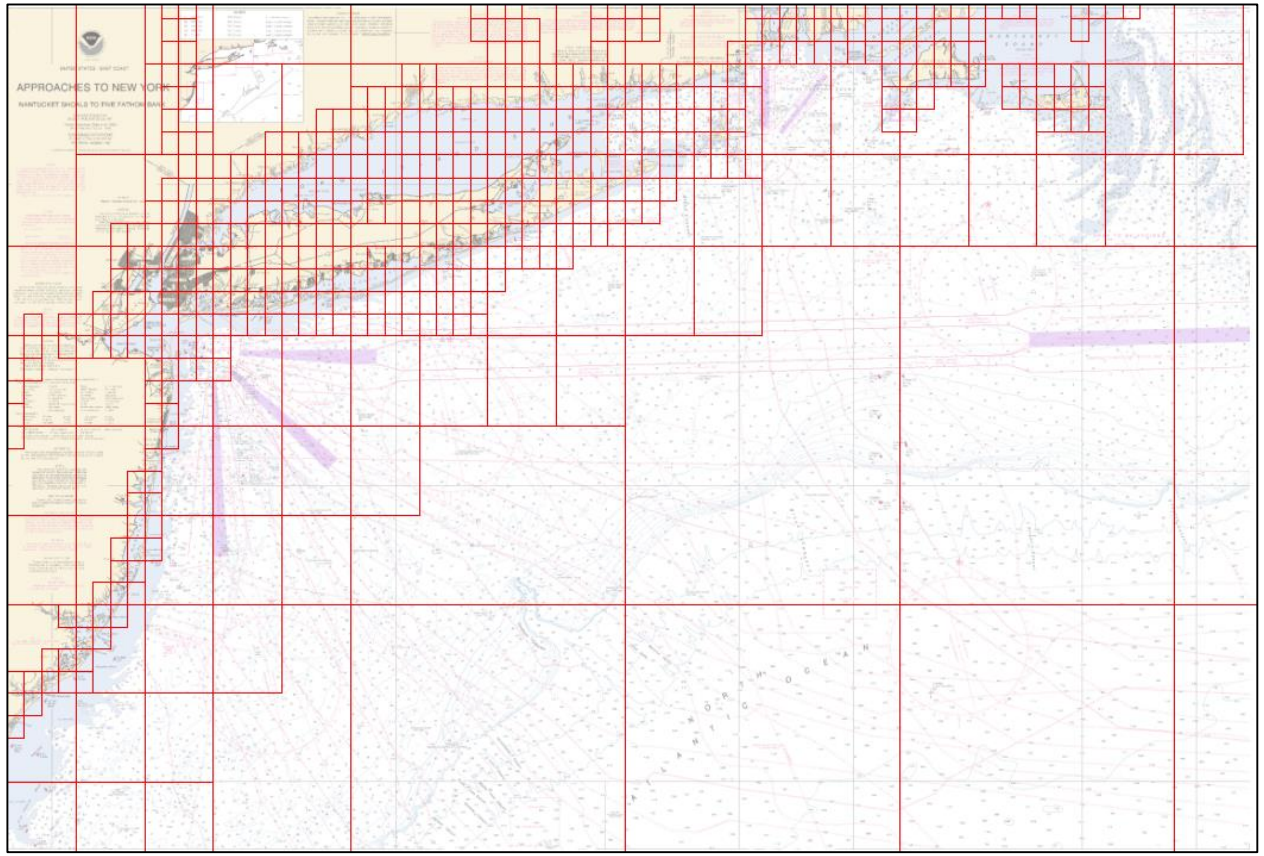




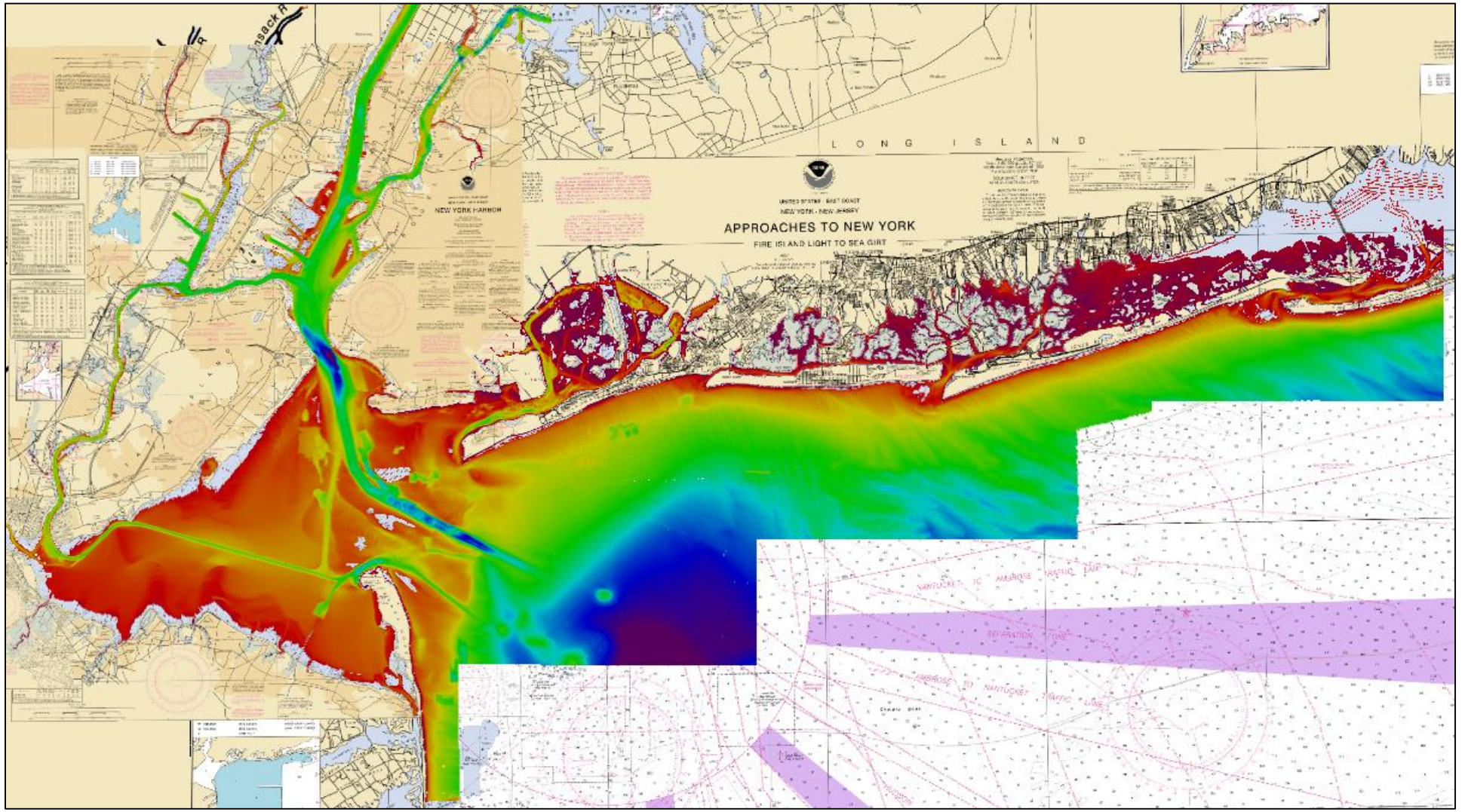


Next Generation of Charts

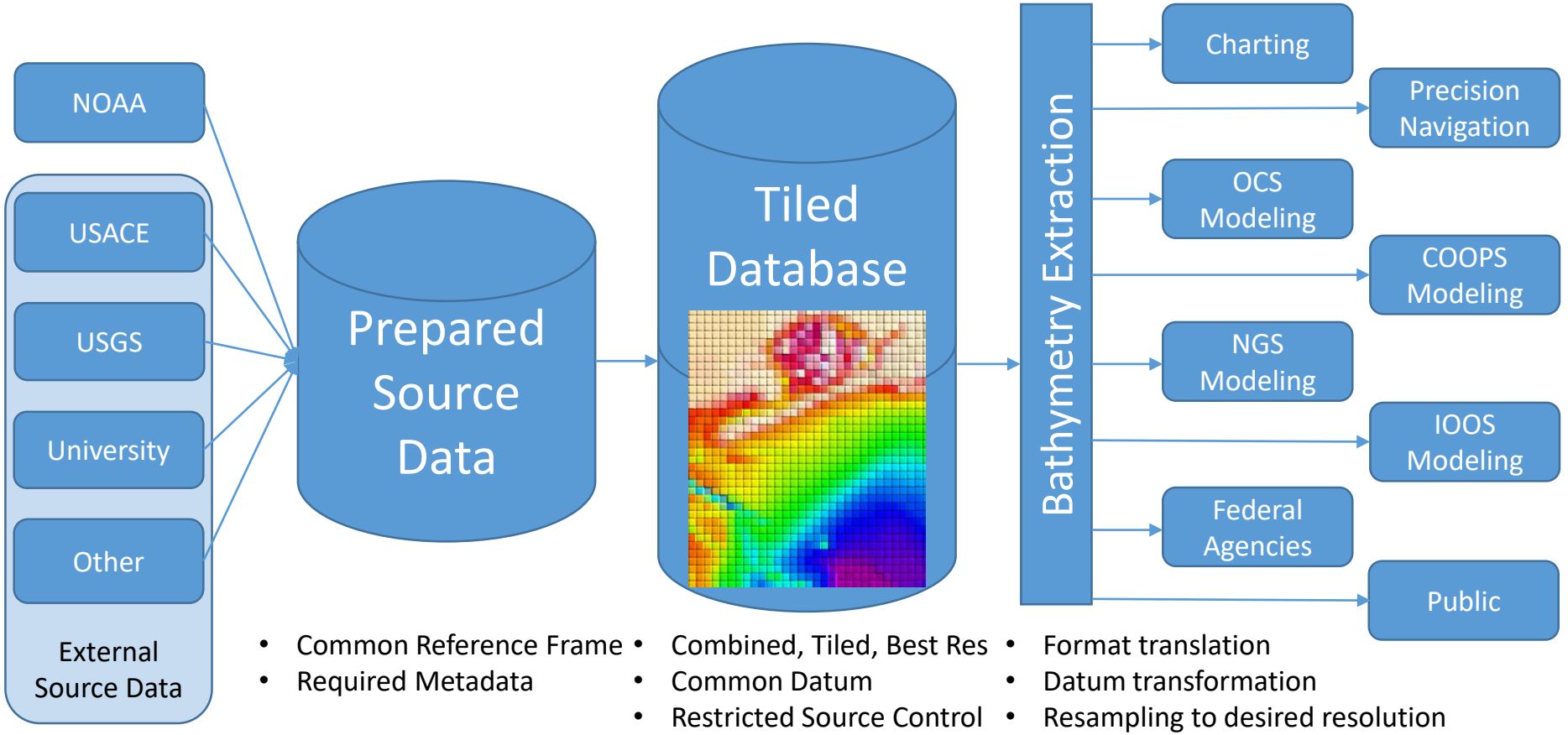




Data-Driven Workflow



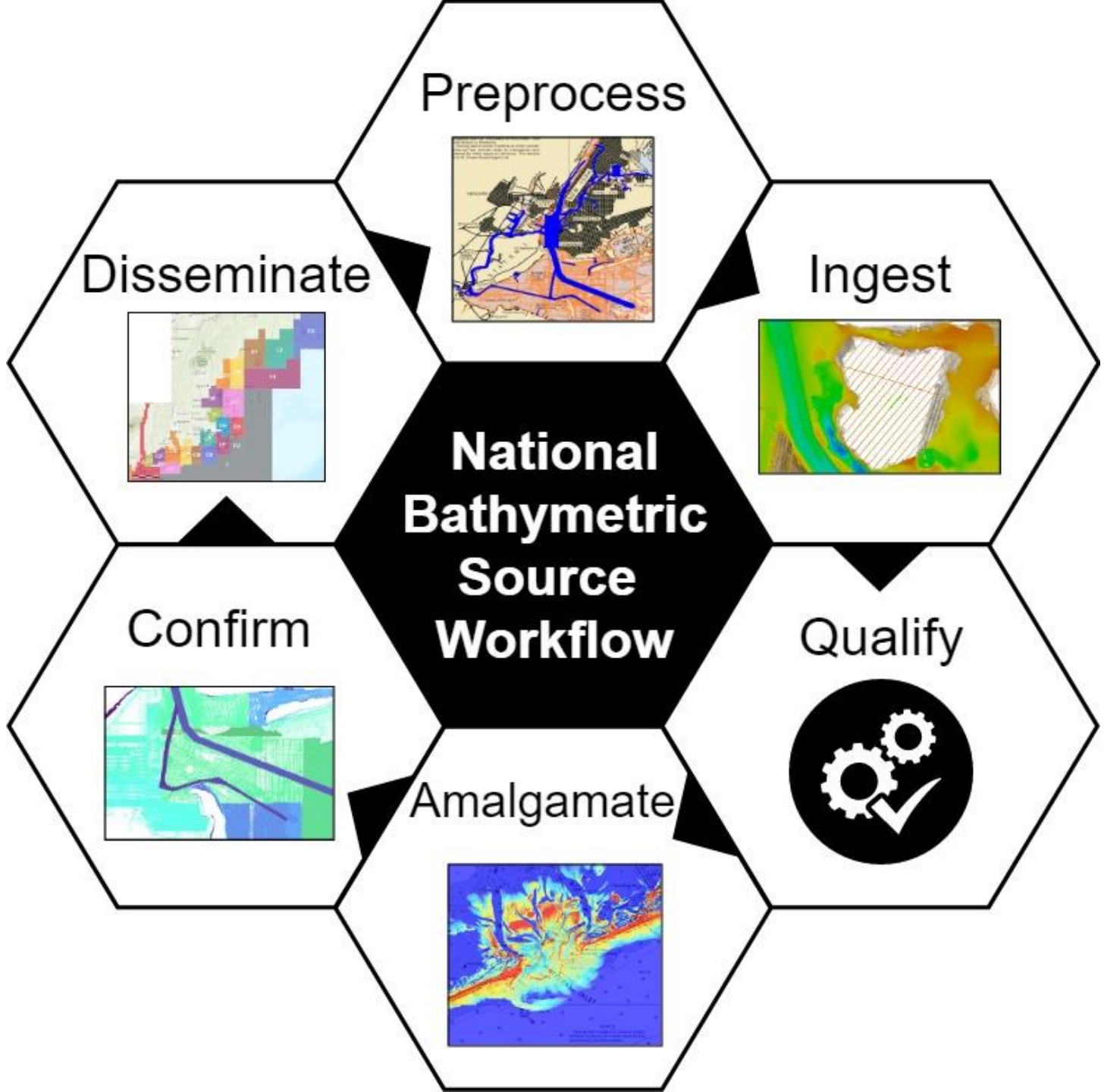
National Bathymetric Source Project

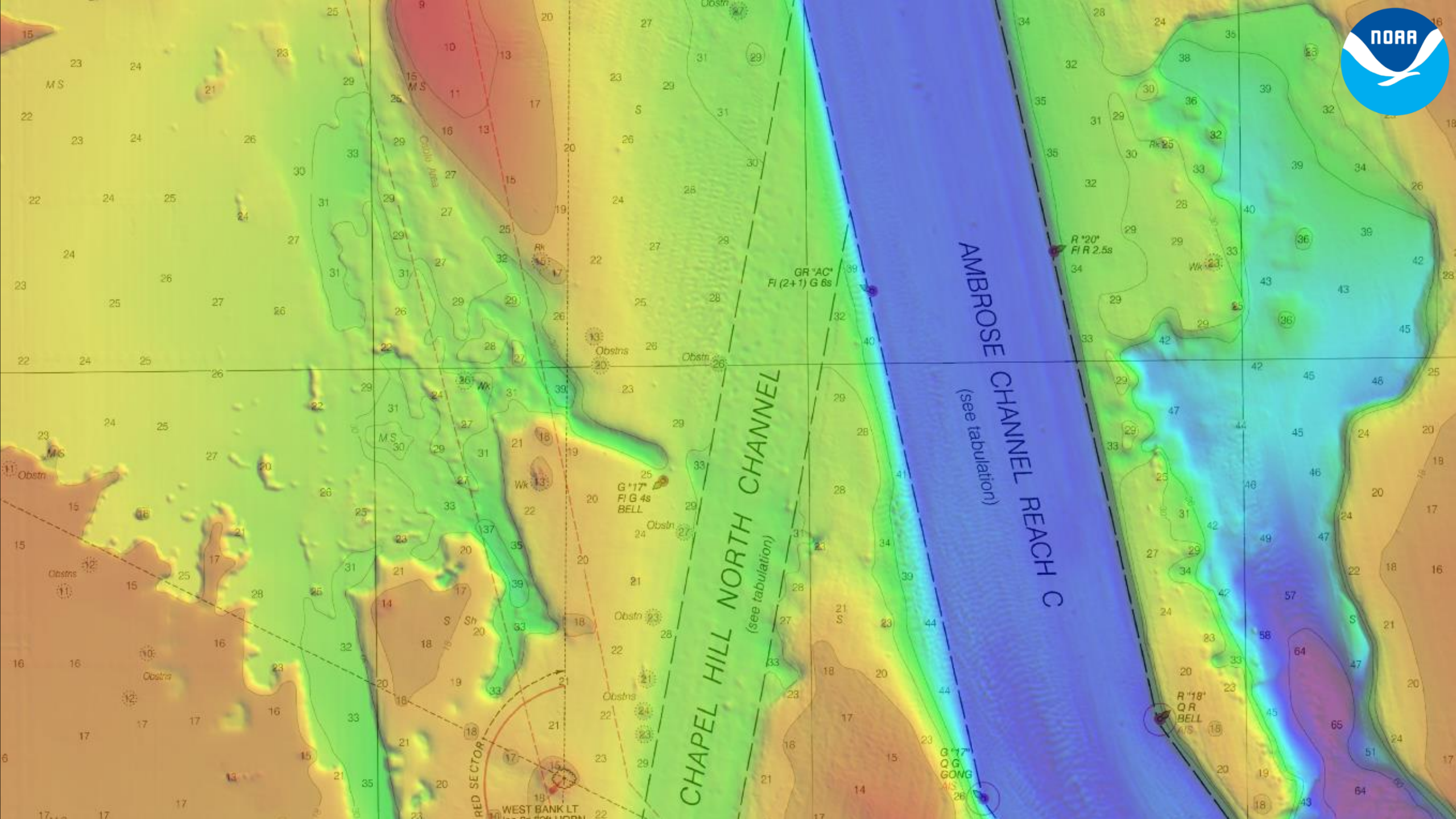


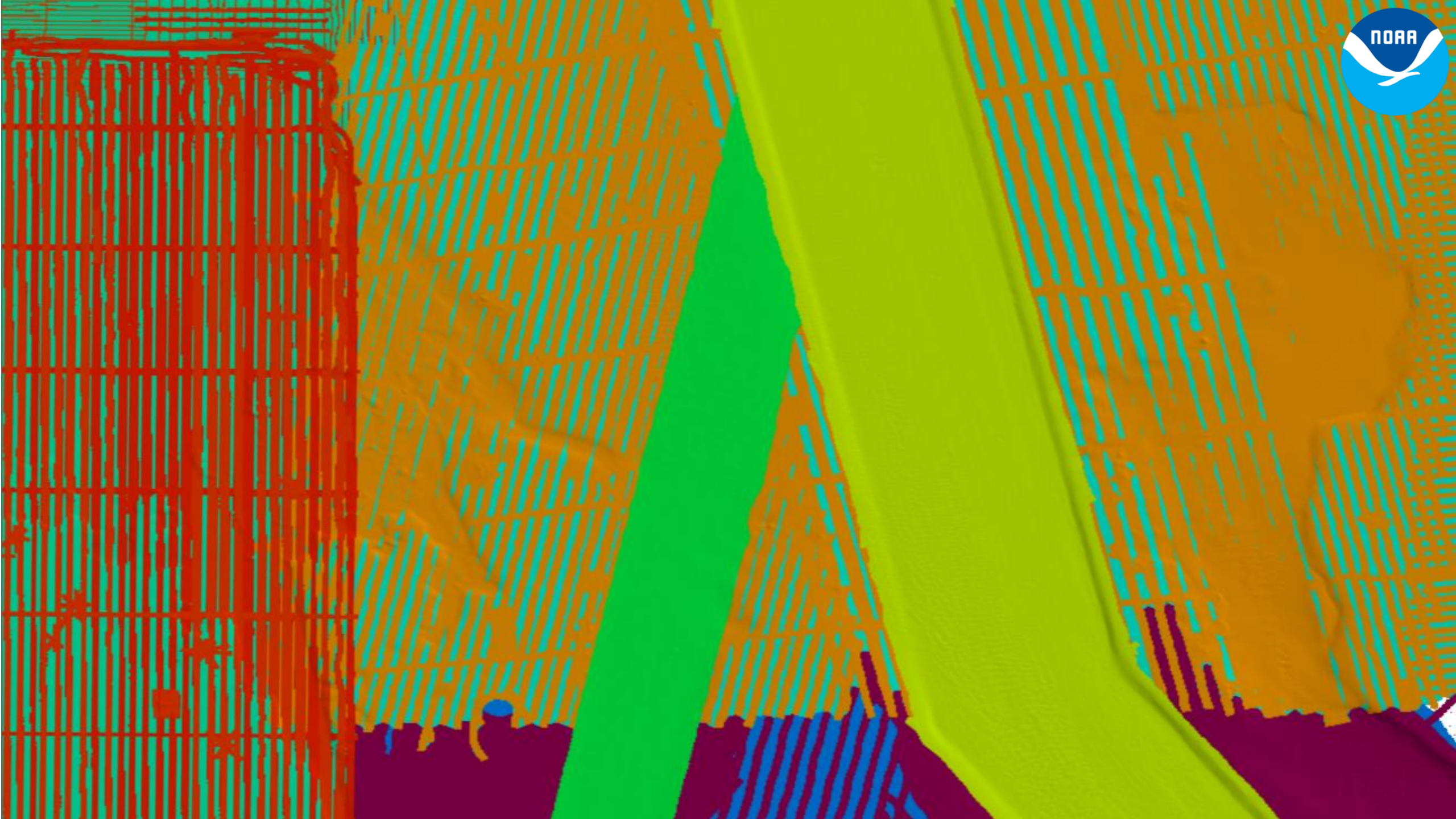
- Common Reference Frame
- Required Metadata

- Combined, Tiled, Best Res
- Common Datum
- Restricted Source Control

- Format translation
- Datum transformation
- Resampling to desired resolution

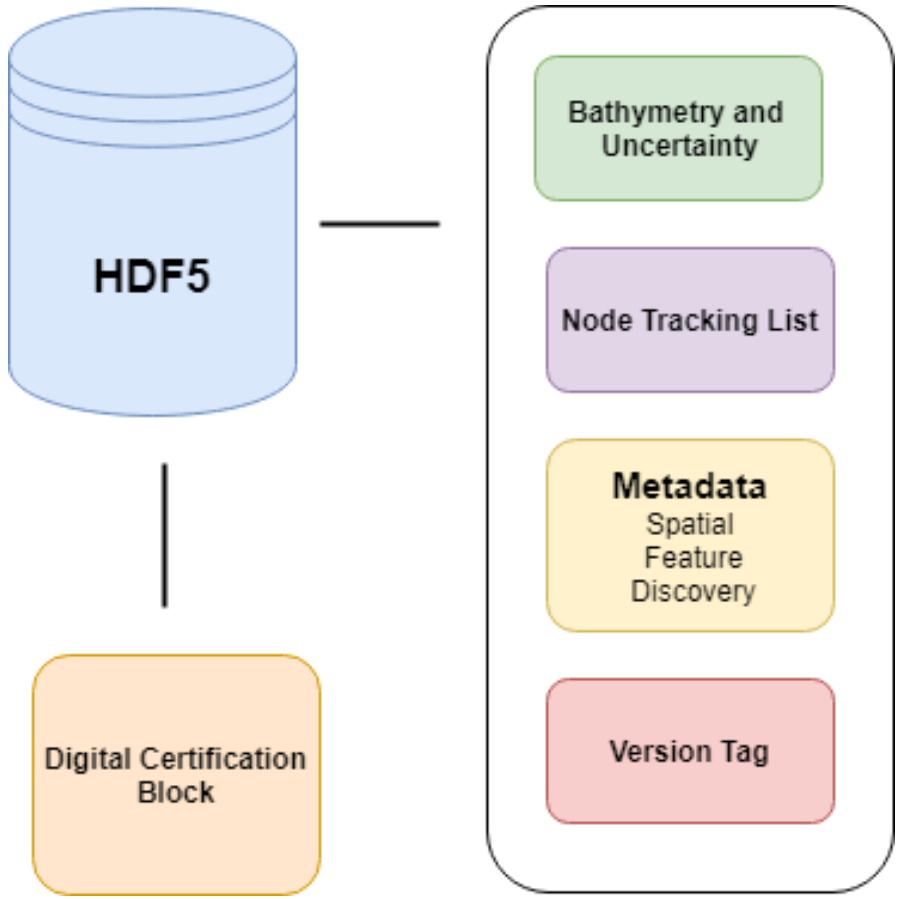

Preprocess
Ingest
Qualify
Amalgamate
Confirm
Disseminate
National Bathymetric Source Workflow


CHAPEL HILL NORTH CHANNEL
(see tabulation)
AMBROSE CHANNEL REACH C
(see tabulation)
GR "AC"
Fl (2+1) G 6s
G "17"
Fl G 4s
BELL
R "20"
Fl R 2.5s
R "18"
Q R
BELL
G "17"
Q G
GONG
WEST BANK LT
Obstn
Obstns
Wk
Rk
Cable Area
RED SECTOR


NOAA

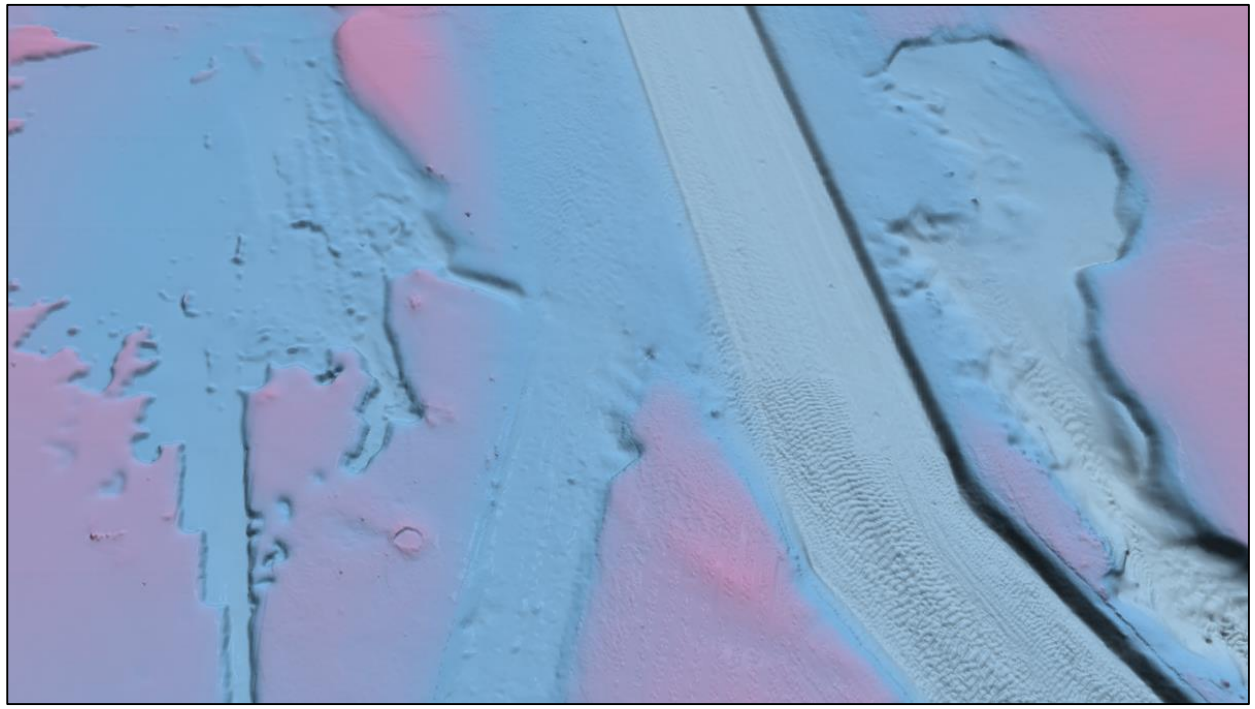
AMBROSE CHANNEL REACH C
(see tabulation)
CHAPEL HILL NORTH CHANNEL
(see tabulation)
GR "AC"
Fl (2+1) G 6s
NOAA

S-102 Bathymetric Surface



~10 MB Bathymetric Tiles at Various Resolutions and Tile Dimensions

Purpose: Provide high resolution bathymetry in gridded form to support safety of navigation



Norway S-102 Demonstrator Project https://s102.no

Norway S-102 Demonstrator Project https://s102.no

NOAA HD Charts:
Pilot Project in LA/Long Beach and Mississippi River

Craig Winn, Noel Dyer

HD Chart Drivers

- Growth in the use of deeper draft vessels
- More advanced ENC production systems
- Increased availability of high quality source data
- Consumer desire for data rich chart products

HD Chart

- HD ENC Specifications
- Test Area
- Source Data Specifications
- Compilation Process
- Sample Deliverables

HD ENC Specifications

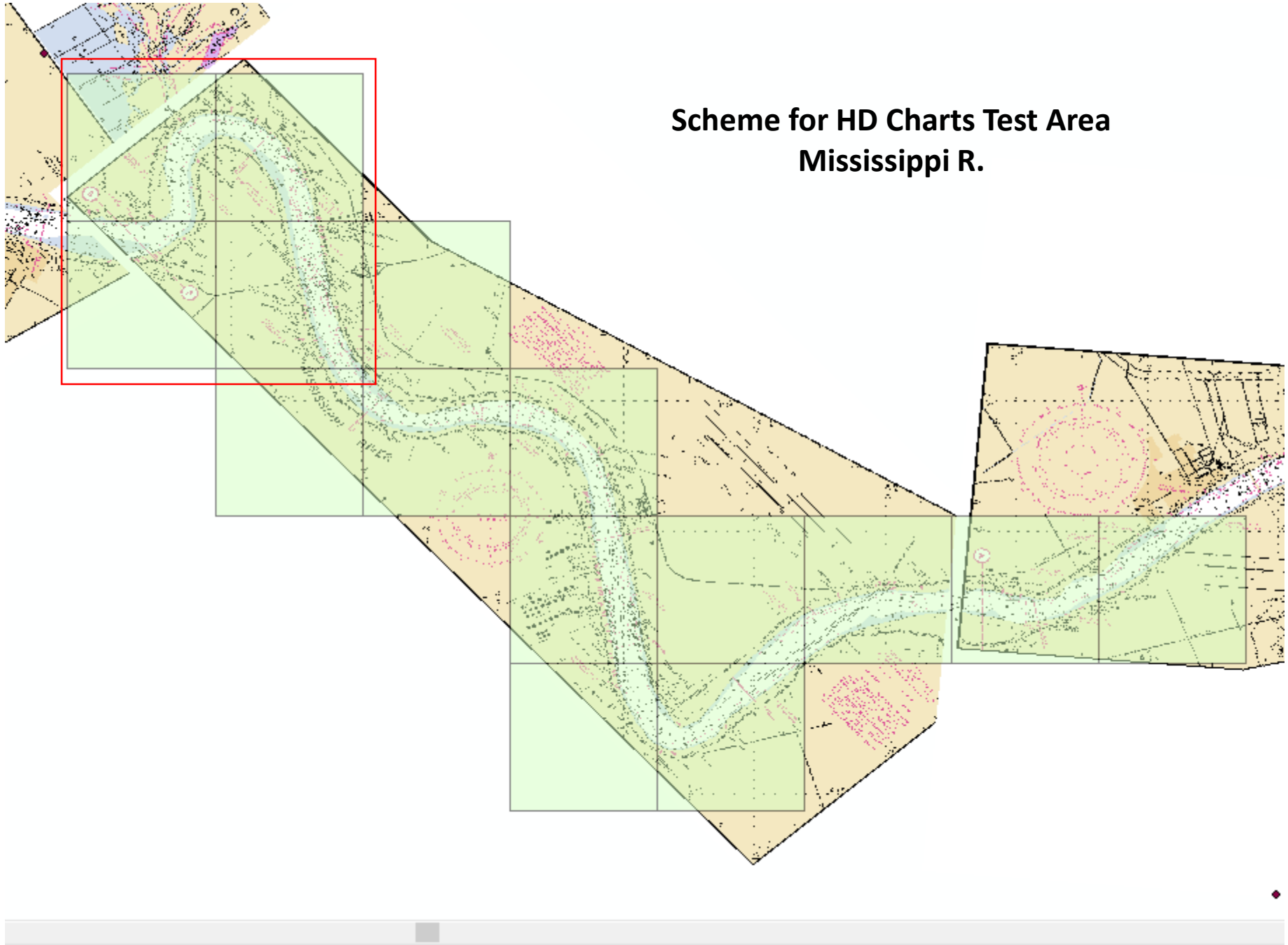
- Built to the IHO S-57 standard
- Validated against IHO S-58
- IHO Scale Band 6: 1 to 5,000
- Gridded to adhere to MCD re-scheme
- Official NOAA Chart Product

Initial Test Areas

Based upon the availability of suitable source data, this 1st phase of HD Chart production has been limited to two primary test areas.

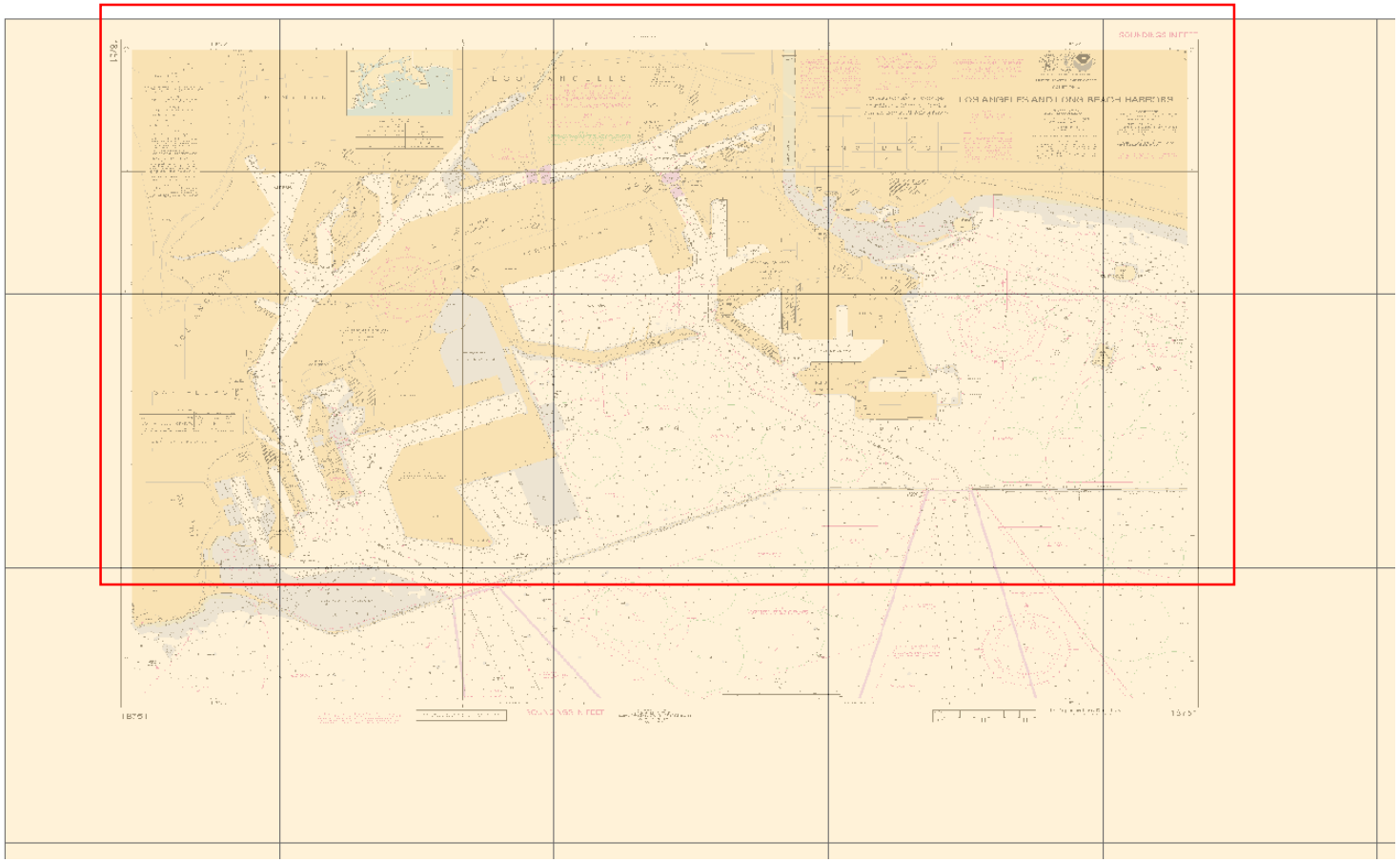
- Mississippi River, Louisiana
- Ports of Long Beach/Los Angeles, California

Scheme for HD Charts Test Area
Mississippi R.



Initial Study Areas

Scheme for HD Charts Test Area
Port of Long Beach/LA



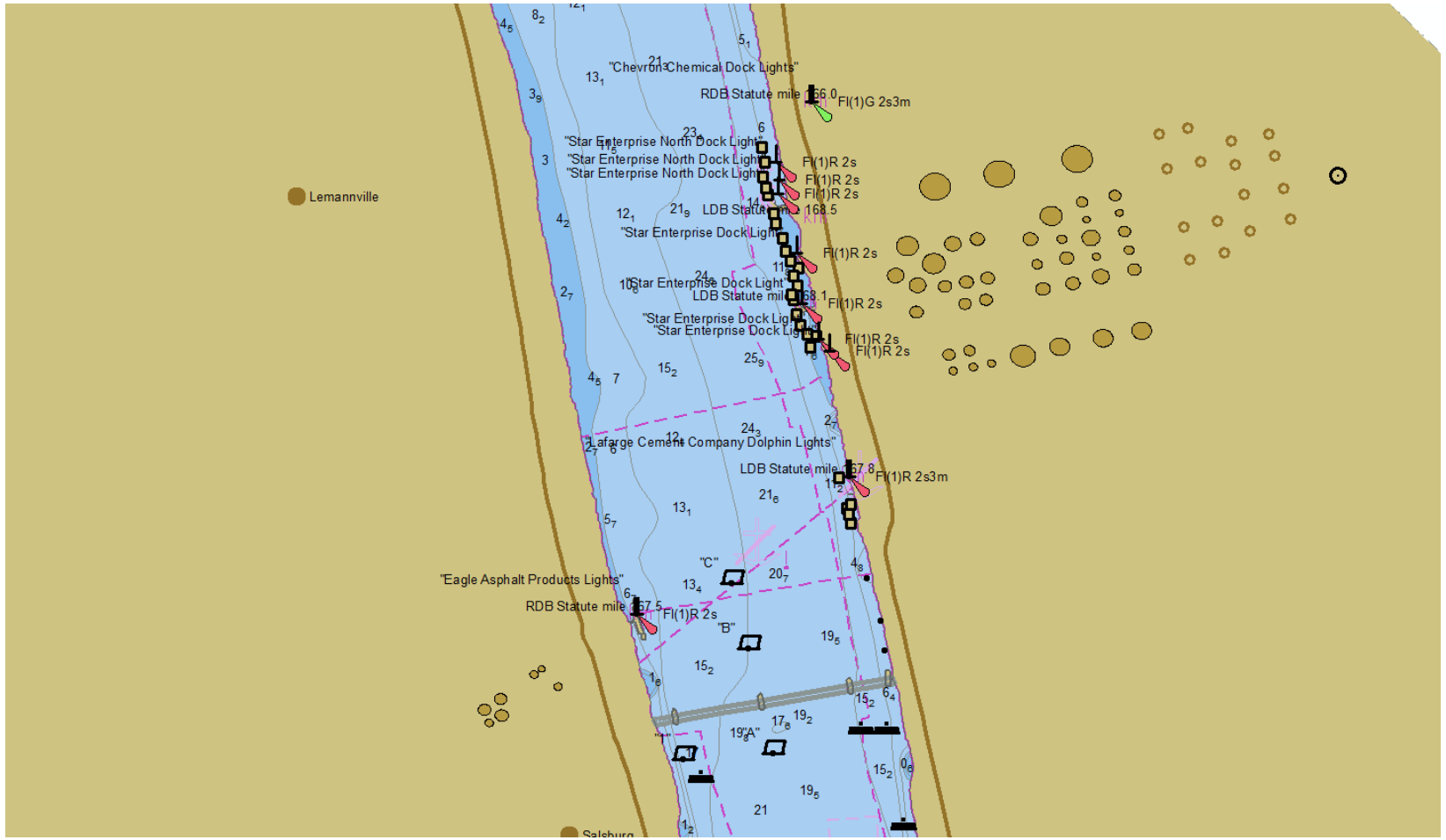
HD Chart Source Specifications

- NOAA HD Charts will be built using high resolution multi-beam data.
- The two test areas have been surveyed or will be surveyed to the necessary data quality.
- This high resolution source data results in a smooth surface making automation of the compilation process possible

HD ENC Compilation

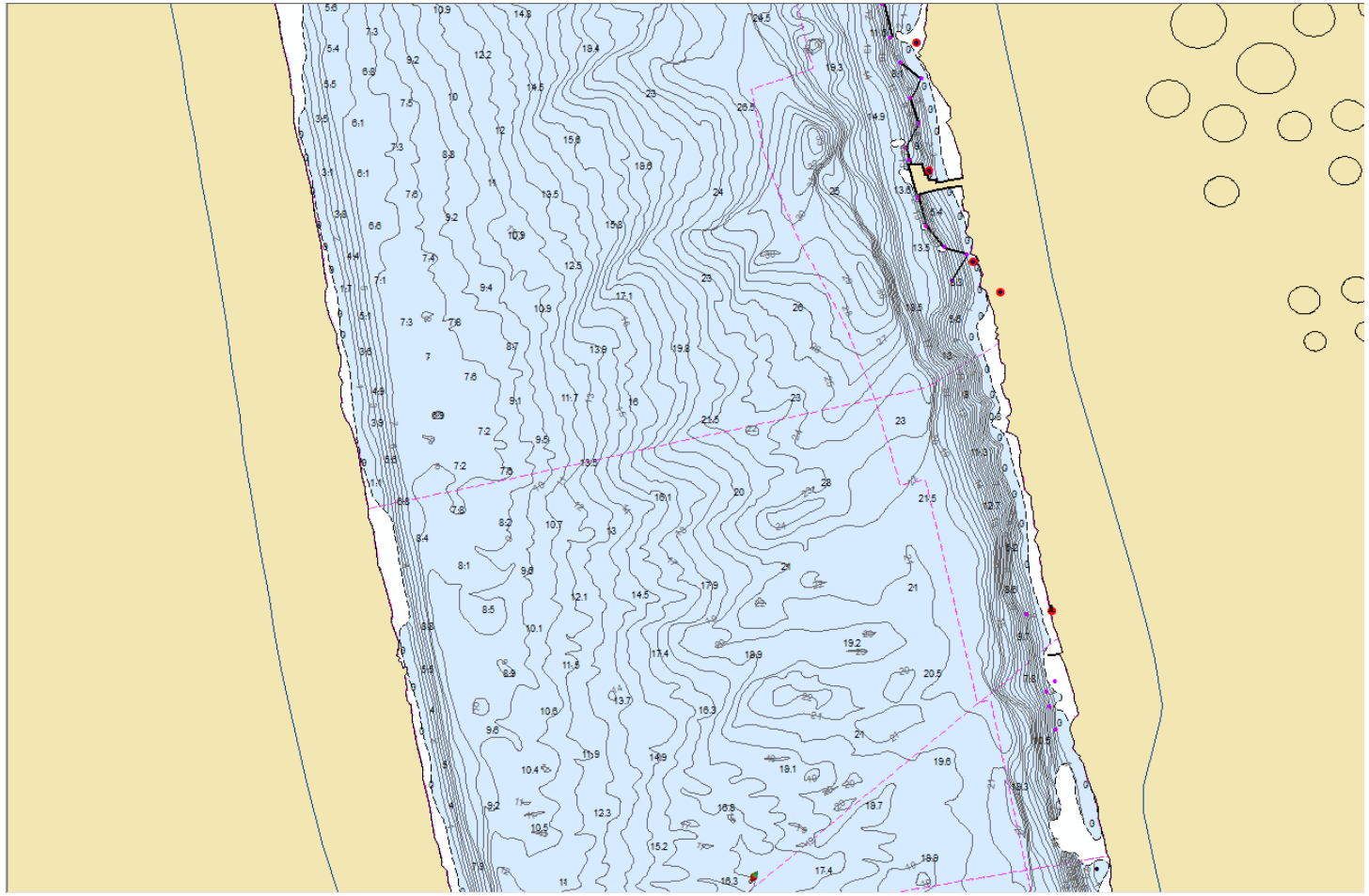
- Automated to the highest degree possible
- Process utilizes existing tools, and scripts those tools into a unified workflow resulting in a HD chart
- Outputs are *.000, GDB, and Data Reviewer table of the S-58 Errors and Warnings

Existing ENC coverage



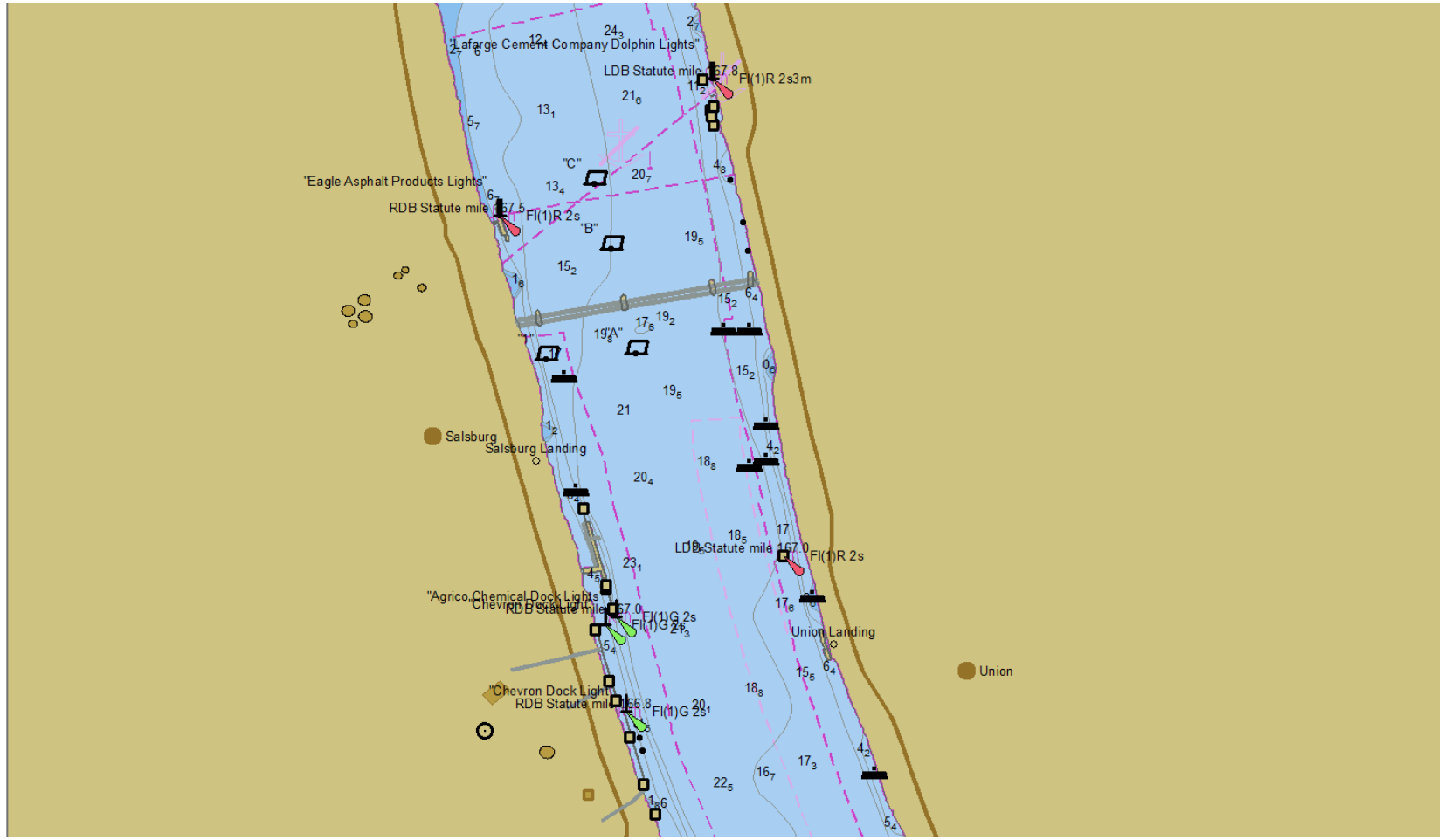
US6LA54M Scale = 1:12,000

Existing ENC coverage



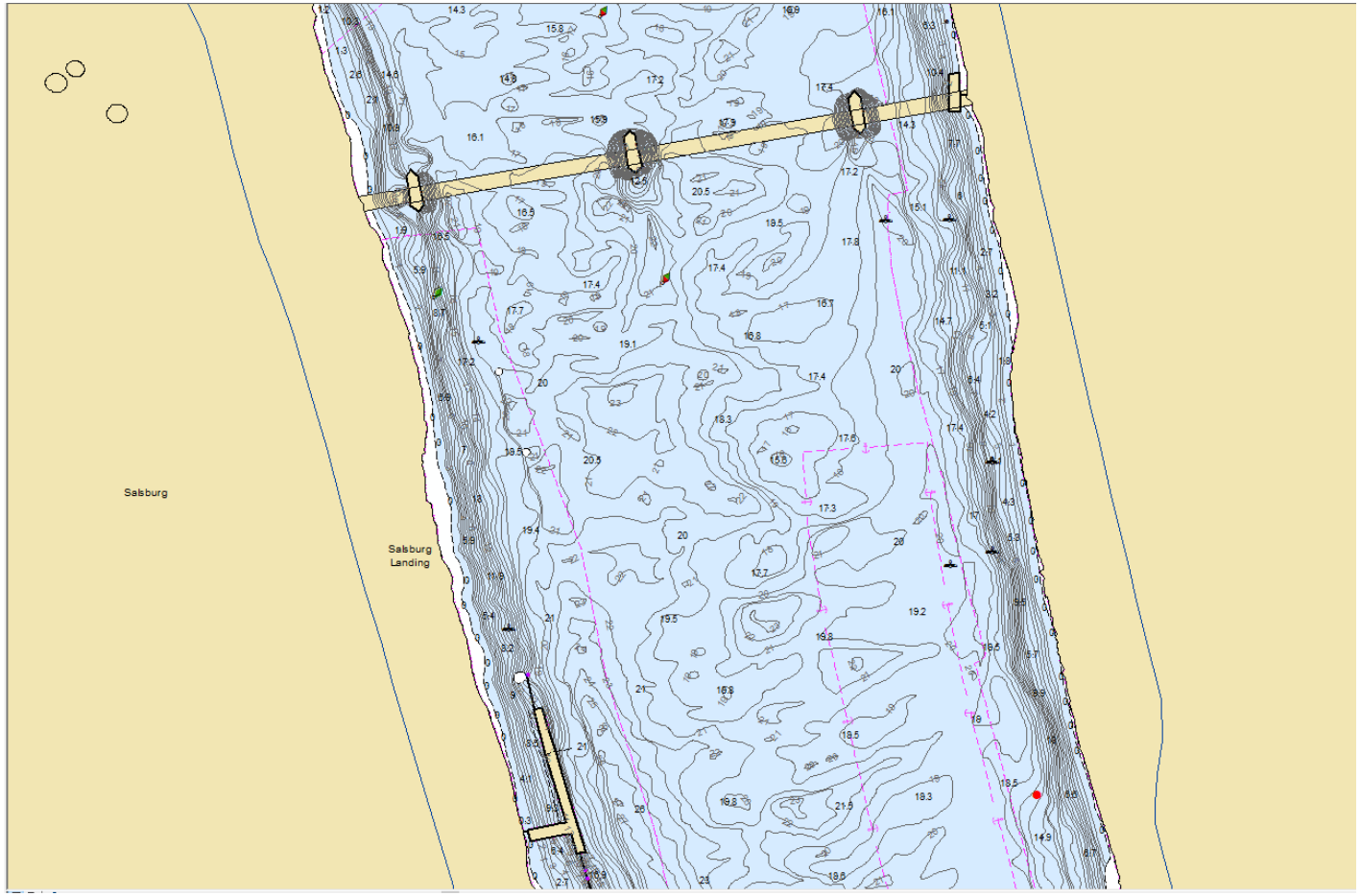
US6MRHHM Scale = 1:5,000

Existing ENC coverage



US6LA54M Scale = 1:12,000

Existing ENC coverage



US6MRHHM Scale = 1:5,000